

REMARKS

Claims 1-23 are pending in the application.

Claims 11-23 are withdrawn.

Claims 1-10 are rejected under 35 U.S.C. 103(a).

Claims 24 and 25 are added.

No new matter is added.

Claims 1-10, 24, and 25 remain in the case for consideration.

Applicant requests reconsideration and allowance of the claims in light of the above amendments and following remarks.

In the Specification

The specification has been amended to correct informalities and to improve the clarity of the disclosure. No new matter has been added. In particular, the following has been amended in the specification. 1) Page 5, line 30 has been amended to replace "separate temperature controller 330" with "separate temperature controller (not shown)" for clarity purposes. 2) Page 6, lines 17-18 have been amended to replace "which in communication with overlying O-ring 170" with "which is in communication with the overlying O-ring 170" for clarity purposes.

In the Claims***Claims Rejections – 35 U.S.C. § 103***

Claims 1-10 are rejected under 35 U.S. C. § 103(a) as being unpatentable over U.S. Patent No. 4,547,404 Campbell et al., ("Campbell"), in view of U. S. patent No. 5,529,632 Katayama et al., ("Katayama").

Claim 1 stands rejected under § 103(a) as unpatentable over Campbell in view of Katayama. Claim 1 is directed to a diffusion furnace for use in fabricating semiconductor devices. The furnace of claim 1 comprises:

- a support member;
- a process chamber installed on the support member;
- a sealing member for sealing the process chamber from the outside, the sealing member being inserted between the support member and the process chamber; and
- a cooling system for cooling the sealing member, the cooling system including a first fluid passage in which a first fluid flows for cooling the sealing member, the first fluid passage being formed within the support member, and a second fluid passage in which a second fluid flows for cooling the sealing member when

supplying the first fluid is interrupted, the second fluid passage being formed within the support member.

In particular, the furnace of claim 1 includes the limitation of a first fluid passage in which a first fluid flows for cooling the sealing member, the first fluid passage being formed within the support member, and *a second fluid passage in which a second fluid flows for cooling the sealing member when supplying the first fluid is interrupted*, the second fluid passage being formed within the support member.

The Applicants respectfully remind the Examiner that § 103(a) requires that the claimed invention be viewed as a whole. Further, the courts have held that in an obviousness analysis, an examiner is to determine the difference between the invention being claimed and the teachings of the closest analogous prior art, and in addition, whether a person of ordinary skill in the art would be motivated to modify these teachings to arrive at the claimed invention.

In the instant Office Action, the Examiner was cited Campbell as teaching the process chamber (4), the sealing member (50), and the support member (42), which includes a fluid passage (64) to help regulate the temperature of the sealing member. *See Fig. 1 and 2, Col. 5, lines 42-46.* However, as the Examiner acknowledges, Campbell does not teach an additional second fluid passage in which a second fluid flows for cooling the sealing member when supplying the first fluid is interrupted, the second fluid passage being formed within the support member. The Examiner cites Katayama along with Campbell to be used in combination to teach the limitations of claim 1. However, Katayama is cited only for the purpose of teaching a temperature controller, as there is no mention of a second fluid passage. Specifically, the section cited by the Examiner states:

The side wall of the reaction chamber 13 has a double wall structure so that a flow path 12 serving as a passage for a heating medium is formed inside the double-structured side wall. An inlet pipe 12a and an outlet pipe 12b for the heating medium are connected to the lower and upper portions of the flow path 12, respectively. Col. 5, lines 52-57.

The Examiner then states: "It would have been obvious to one of ordinary skill in the art [sic] at the time the invention was made to add plural cooling conduits to Campbell's support member. . . ." Page 6, lines 8-9. Further, the motivation for this assertion is explained in the Office Action as "Motivation to add plural cooling conduits to Campbell's support member is to enhance cooling as taught by Campbell's additional second fluid passage." Page 6, lines 12-14.

The Applicants respectfully traverse this rejection and reasoning. To begin with, because neither Campbell nor Katayama teach or otherwise suggest a second fluid passage formed in the support member, the Examiner must find that the suggestion or motivation to modify Campbell comes from the knowledge of persons of ordinary skill in the art. The Examiner has not, however, provided any factual evidence of this suggestion from the knowledge of those skilled in the art, and has merely stated that it would be obvious to one of ordinary skill in the art. Thus, the Examiner has not met the burden of establishing a *prima facie* case of obviousness. In addition, the motivation supplied by the Examiner ("to enhance cooling") is not correctly applied. Neither the present invention nor Campbell has raised an issue that the cooling provided by the first fluid passage is inadequate to provide the necessary cooling during operation of the furnace. Rather, as claim 1 specifies, the second fluid passage being used for cooling the sealing member *when supplying the first fluid is interrupted*. Thus, the second fluid passage is being used as a backup system of providing cooling fluid in the event that the supply of first cooling fluid is interrupted so as to protect the sealing member. Therefore, because this limitation is not taught or otherwise suggested by Campbell and Katayama, either individually or in combination, and because there is no other factual evidence provide in analogous art that teaches this limitation, the Examiner has failed to establish a valid *prima facie* rejection under § 103(a). As such, and for at least the reasons mentioned above, the Applicants submit that claim 1 is in proper form for allowance, and request that the rejection under § 103(a) be removed.

Claims 2-10 depend from claim 1. Based at least on this dependency, the Applicants submit that claims 2-10 are likewise in proper form for allowance.

New Claims

Claims 24 and 25 are dependent claims that have been added to emphasize novel features of claimed invention. Claim 24 is dependent on claim 1 and specifies that the flow of the second fluid in the second fluid passage occurs when an error occurs in the first cooling system, and particularly when an error occurs at the temperature controller. Claim 25 is dependent on claim 24 and specifies that the second fluid flows in the second fluid passage in response to an electrical control signal. These features are supported by the specification, at, for example, page 6, lines 1-3 and page 6, lines 30-34. In addition, these novel features are not taught or otherwise disclosed by the cited references. As mentioned above, neither Campbell nor Katayama teach a second fluid passage, in which a second fluid flows when the supplying of the first fluid is interrupted, such as when an error occurs at the temperature

controller. Nor do the cited references teach the second fluid flowing in the second fluid passage in response to an electrical control signal.

Conclusion

For the foregoing reasons, reconsideration and allowance of claims 1-10, 24, and 25 of the application as amended is solicited. The Examiner is encouraged to telephone the undersigned at (503) 222-3613 if it appears that an interview would be helpful in advancing the case.

Respectfully submitted,

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